

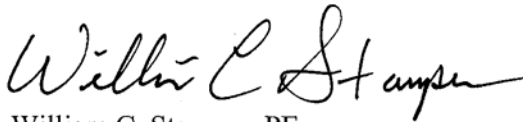
**Department of Health and Human Services
Sustainable Buildings Implementation Plan
March 2007**

EXECUTIVE SUMMARY

On January 24, 2006, the Department of Health and Human Services signed the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) to commit to Federal leadership in implementing common strategies for planning, acquiring, siting, designing, building, operating, and maintaining high performance and sustainable buildings. Twenty-one agencies signed the MOU. The MOU establishes a common set of Guiding Principles to: 1) employ integrated design principles; 2) optimize energy performance; 3) protect and conserve water; 4) enhance indoor environmental quality; and 5) reduce environmental impact of materials. These Guiding Principles will help the Department of Health and Human Services achieve the MOU goals:

- **Reduce** the total ownership cost of facilities;
- **Improve** energy efficiency and water conservation;
- **Provide** safe, healthy, and productive built environments; and
- **Promote** sustainable environmental stewardship.

This Plan implements the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings* and will be updated annually, and reported on semiannually to promote continuous improvement toward the goals.



William C. Stamper, PE
Deputy Assistant Secretary for Facilities Management and Policy

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Sustainable Buildings Implementation Plan

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ACTION ITEM	CURRENT STATUS	NEXT STEPS	INDIVIDUAL RESPONSIBLE	TARGET COMPLETION DATE	ACTUAL COMPLETION DATE
PROGRAMMING AND IMPLEMENTATION					
<p>Develop Sustainable Design/Green Buildings Policy and Implementation Plan that:</p> <ul style="list-style-type: none"> - Covers applicable building projects (i.e., new buildings, leases, build-to-lease projects, and major and minor renovations) based on building type, size, and/or budget. - Complies with OMB Circular A-11 Part 7 Section 300 - Planning, Budgeting, Acquisition, and Management of Capital Assets. 	<p><i>HHS Policy for High Performance and Sustainable Buildings complete and issued on 9/8/06.</i></p> <p><i>Implementation Plan (IP) complete and issued on 12/21/06. IP includes definitions (Appendix C).</i></p> <p><i>IP complies with OMB Circular A-11.</i> http://www.whitehouse.gov/omb/circulars/a11/current_year/s300.pdf <i>Asset management integrated in budget decision-making process, including measurable performance goals. Budget guidance and supporting documentation incorporated sustainability into business case for each new project beginning with FY 2008 budget cycle.</i></p>	<p><i>Definitions to be updated annually, as appropriate.</i></p> <p><i>A-11 requirements reviewed annually to ensure incorporation into budget guidance and documentation.</i></p>	<p><i>HHS workgroup</i></p> <p><i>OFMP</i></p>	<p><i>12/31/06</i></p>	<p><i>12/21/06</i></p>
Ensure that Agency policies employing Integrated Project Teams for capital asset	<i>Integrated project team (IPT) definition complete and consistent with OMB A-11.</i>	<i>Requirements will be incorporated into pre-budget guidance.</i>	<i>OFMP</i>	<i>6/30/07</i>	<i>3/1/07</i>

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acquisition are applied at the earliest stages of project planning (i.e., pre-funding, conceptual design) for all capital asset projects involving new buildings, build-to-lease, and/or major renovations in order to address the <i>Guiding Principles</i> . Depending on project size and scope, these teams should have expertise in: sustainable design, energy, environment, occupational safety and health, commissioning, measurement and verification, water efficiency, facilities, building materials, ventilation and thermal comfort, moisture control, day lighting, indoor air quality, construction waste, and other green building qualifications for the design, construction, commissioning, and operation of the project. It is expected that these integrated teams will include both federal and nonfederal (within the contracted project team) staff.	<i>Projects requiring IPT incorporated into Appendix E (excludes OPDIV's without delegated leasing authority).</i>	<p><i>Establish a core IPT for each project:</i></p> <ul style="list-style-type: none"> <i>Identify expertise required based on specific project scope and size.</i> <i>Assess if internal or external resources are available.</i> <i>Core team members must participate in Project Definition Rating Index (PDRI).</i> <p><i>Consider IDIQ contracts with expertise in green building qualifications for design, construction, commissioning and operations of project.</i></p> <p><i>Each OPDIV (landholders and/or delegated leasing authority) shall establish an IPT approach that ensures a project sustainability strategy is incorporated consistent with the policy.</i></p>	OPDIVs	6/30/07	
Develop a procedure to	<i>Addressed in FY08 budget</i>	<i>Update FPAA guidance for</i>	<i>HHS Workgroup</i>	<i>6/30/07</i>	<i>3/1/07</i>

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incorporate the <i>Guiding Principles</i> in all business cases for new building construction or major renovations developed per OMB A-11 Part 7 Section 300.	<i>cycle via FPAA documentation. Review of A-11 complete and FPAA update in process for FY09 budget cycle. Leasing checklist for sustainability incorporated into Appendix G.</i>	<i>FY09 budget cycle. Ensure all OMB requirements are incorporated into FPAA to support the business case for each project. Pre-budget guidance to reference FPAA and Leasing checklist.</i>	OFMP		
Perform a “gap analysis” of existing policies, programs, criteria, specifications, and authorities that address sustainable buildings goals and identify shortfalls.	<i>Addressing under individual action items.</i>	<i>Continue review and development of criteria to meet MOU as we develop specific action items. Current shortfalls: Create checklists for performance targets to assist OPDIVs in identifying progress on projects. Update HHS Facilities Program Manual to reflect specific requirements.</i>	HHS Workgroup	6/30/07	
Establish specific sustainability performance targets for meeting goals in the <i>Guiding Principles</i> .	<i>Defined applicable mandated goals vs. desirable goals and summarized in Appendix F.</i>	<i>Cross reference to new Executive Order Develop checklists (Build-to-Lease, Construction, Renovation) The OPDIVs shall establish a</i>	HHS Workgroup OPDIVs	6/30/07	

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		<p><i>framework for performance goals.</i></p> <p><i>Where applicable, the IPT shall establish and monitor performance goals consistent with the sustainability strategy for the project and document in the FPAA.</i></p> <p><i>The IPT shall establish performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals; and, ensure incorporation of these goals throughout the design and lifecycle of the building.</i></p> <p><i>Performance goals shall be established at pre-project planning; identify specific technologies to be considered.</i></p> <p><i>The IPT shall determine the level of appropriate certification under LEED™ or Green Globes; and</i></p>	Landholding OPDIVs		

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		<i>incorporate, or consider, EMS plans.</i>			
Identify key players, their responsibilities, and functional relationships in the decision-making process.	<i>Policy incorporates roles and responsibilities; implementation plan defines OPDIV responsibilities. Matrix (Appendix J) summarizes current implementation status within OPDIVs.</i>	<i>Matrix updated on a quarterly basis. Implementation guidance incorporated into pre-budget guidance.</i>	<i>HHS Workgroup OFMP</i>	<i>6/30/07</i>	<i>3/1/07</i>
Create template agreements to be used by building property officials and senior management to demonstrate commitment to the <i>Guiding Principles</i> .	<i>Construction and renovation are addressed in current FPAA's. Leasing checklist for sustainability incorporated into Appendix G.</i>	<i>Update FPAA guidance for FY09 budget cycle.</i>	<i>HHS Workgroup</i>	<i>6/30/07</i>	<i>3/1/07</i>
Establish procedures for measuring compliance with established mandates, goals, targets, and applicable score cards.	<i>Ongoing</i>	<i>Develop a project checklist with 2-part format:</i> <ul style="list-style-type: none">• <i>Planning</i>• <i>Project completion</i>	<i>HHS Workgroup</i>	<i>6/30/07</i>	
Describe how the Sustainable Buildings Program is being coordinated with the EMS and Agency's asset management plan.	<i>Sustainable Buildings Program incorporated into updated RAMP.</i>	<i>Develop an approach for coordinating the Sustainable Buildings Program with Environmental Management Systems (EMS) at appropriate facilities. Implement the approach for</i>	<i>OPDIVs OPDIVs</i>	<i>6/30/07 12/31/07</i>	

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		<i>coordinating the Sustainable Buildings Program with facility-level EMS.</i>			
Create a strategy for promotion of the plan to the field by education and training.	<i>Ongoing</i>	<i>Incorporate Sustainability into the Facilities Management Training Program. (Rick Herring)</i> <i>Each land-holding OPDIV shall have a program to train/certify at least one facilities person in LEED.</i>	<i>OFMP</i> <i>OPDIV's</i>	<i>6/30/07</i>	
Create a strategy for communication of the plan to the authority having jurisdiction to incorporate plan/goals into their services	<i>Signed IP distributed 12/21/07. 2Q07 Update provided for review 2/15/07.</i>	<i>Matrix and status of implementation updated quarterly and distributed to Facilities Directors to ensure incorporation into OPDIV facilities programs.</i>	<i>OFMP</i>	<i>6/30/07</i>	
Modify all pertinent Agency policies to incorporate <i>Guiding Principles</i> .	<i>Initial inquiry distributed to collect extramural program information.</i>	<i>Update the HHS Facilities Program Manual</i> <i>Research extramural construction programs and determine feasibility of incorporating sustainability into grants policy</i> <ul style="list-style-type: none"> • <i>Project scope</i> • <i>Legislation</i> • <i>Level of HHS</i> 	<i>OFMP</i>	<i>12/31/07</i>	

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		<i>oversight</i>			
Establish procedures to incorporate the <i>Guiding Principles</i> into criteria, leases, contract language, designs, and specifications for new construction, build-to-lease, major renovations and existing building operation and maintenance. The procedures should allow for and encourage continual improvement (<i>Note: consider utilizing the WBDG Federal Green Construction Guide for Specifiers</i>)	<i>Policy and Implementation Plan issued. Additional guidance under development.</i> <i>Ongoing</i>	<i>Complete Implementation Guidance</i> <i>Each OPDIV (landholders and non-landholders) incorporates Guiding Principles into their internal guidance</i>	<i>HHS Workgroup</i> <i>OPDIVs</i>	<i>12/31/07</i>	
Develop an Existing Building Strategy—which identifies priority facilities and environmental aspects (including energy use and IEQ), addresses minor renovations, and utilizes recommissioning as a tool—in order to identify and implement opportunities to incorporate the <i>Guiding Principles</i> into the existing building stock. Ensure the strategy is signed by senior officials.	<i>Developed a framework for Existing Building Strategy for OPDIVs to incorporate in FY09 budget submittal (reflected in Appendix H).</i>	<i>Consider re-commissioning on 5-10 year basis, consistent with occupancy of building as well as ongoing improvements to improve the quality of the indoor work environment.</i> <i>Issue pre-budget guidance for FY09 budget cycle incorporating framework for an Existing Building Strategy.</i>	<i>HHS Workgroup</i> <i>OFMP</i>	<i>6/30/08</i>	
Develop a strategy to address	<i>Initial definition of</i>	<i>Develop a waiver process to</i>	<i>HHS Workgroup</i>	<i>12/31/07</i>	

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sustainability opportunities for those buildings that agencies have determined “Not applicable” to all of the 5 <i>Guiding Principles</i> .	<i>applicable projects and performance targets for incorporating Guiding Principles outlined in Appendices D & F.</i>	<i>analyze projects not able to meet the Guiding Principles.</i> <i>Define when to meet some, but not all requirements, particularly in existing vs. new buildings.</i>			
Correct other programmatic shortfalls identified in the gap analysis.	<i>Under development</i>			<i>12/31/07</i>	
TRACKING AND REPORTING					
Report the success and lessons learned for at least one major building project into High Performance Federal Buildings database annually. http://www.eere.energy.gov/femp/highperformance/index.cfm	<i>Ongoing</i>	<i>Enter data and lessons learned from sustainable buildings into the High Performance Buildings Database.</i> <i>Need to resolve security of project data</i>	<i>OPDIVs</i>	<i>6/30/07</i>	
Define the unit of measurement for tracking/reporting agency progress (# of certified buildings, etc.). Establish a baseline for energy use, water use, and other goals per the <i>Guiding Principles</i> .	<i>Under development</i>	<i>Define units of measurement</i> <i>Coordinate actions being taken to set baselines (Scott Waldman, Eric Haukdal)</i>	<i>HHS Workgroup</i> <i>OFMP</i>	<i>12/31/07</i>	
Institute measurement, verification, and training to	<i>Under development</i>			<i>6/30/08</i>	

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ensure continual improvement. Clearly define how the M/V will be used. Extend commissioning to training of operations and management staff. Clearly define these expectations in contract language.					
Develop semi-annual system for reporting Agency progress towards addressing the <i>Guiding Principles</i> in all building life cycle stages: <ul style="list-style-type: none"> • Siting • Design • Construction • Operations & maintenance • Renovation • End of life 	<i>Under development</i>	<i>Develop checklists</i>	<i>HHS Workgroup</i>	<i>6/30/07</i>	
Report Agency progress toward incorporating the <i>Guiding Principles</i> in all building life cycle stages: <ul style="list-style-type: none"> • Siting • Design • Construction • Operations & maintenance • Renovation (and associated decommissioning) • End of life (and associated decommissioning) 	<i>Under development</i>	<i>Develop checklists</i>	<i>HHS Workgroup</i>	<i>12/31/07</i>	

APPENDIX A

FEDERAL LEADERSHIP IN HIGH PERFORMANCE and SUSTAINABLE BUILDINGS MEMORANDUM OF UNDERSTANDING

PURPOSE: With this Memorandum of Understanding (MOU), signatory agencies commit to federal leadership in the design, construction, and operation of High-Performance and Sustainable Buildings. A major element of this strategy is the implementation of common strategies for planning, acquiring, siting, designing, building, operating, and maintaining High Performance and Sustainable Buildings. The signatory agencies will also coordinate with complementary efforts in the private and public sectors.

BACKGROUND AND FEDERAL POLICY: The Federal government owns approximately 445,000 buildings with total floor space of over 3.0 billion square feet, in addition to leasing an additional 57,000 buildings comprising 374 million square feet of floor space. These structures and their sites affect our natural environment, our economy, and the productivity and health of the workers and visitors that use these buildings.

Therefore, the Federal government is committed to designing, locating, constructing, maintaining, and operating its facilities in an energy efficient and sustainable manner that strives to achieve a balance that will realize high standards of living, wider sharing of life's amenities, maximum attainable reuse and recycling of depletable resources, in an economically viable manner, consistent with Department and Agency missions. In doing so and where appropriate, we encourage the use of life cycle concepts, consensus-based standards, and performance measurement and verification methods that utilize good science, and lead to sustainable buildings.

GOALS AND OBJECTIVES OF THIS MOU: Consistent with and in addition to Federal policy, statutes, executive orders and supplemental agency policies and guidance, the Parties to this MOU collaboratively seek to establish and follow a common set of sustainable Guiding Principles (attached) for integrated design, energy performance, water conservation, indoor environmental quality, and materials aimed at helping Federal agencies and organizations:

- Reduce the total ownership cost of facilities;
- Improve energy efficiency and water conservation;
- Provide safe, healthy, and productive built environments; and,
- Promote sustainable environmental stewardship.

OTHER LAWS AND MATTERS: This MOU is for internal management purposes of the Parties involved. It is not legally enforceable and shall not be construed to create any legal obligation on the part of any of the signatories. This MOU shall not be construed to provide a private right or cause of action for or by any person or entity. This MOU in no way restricts the Parties from participating in any activity with other public or private agencies, organizations or individuals.

The Parties mutually recognize and acknowledge that MOU implementation will be subject to financial, technical, and other mission-related considerations. It is not intended to create any rights, benefits, or trust responsibilities, either substantive or procedural, nor is it enforceable in law by a party against the US, its agencies, its officers, or any other person.

Collaboration under this MOU will be in accordance with applicable statutes and regulations governing the respective Parties. Nothing in this MOU is intended to affect existing obligations or other agreements of the Parties.

EFFECTIVE PERIOD: This MOU will become effective upon signature. It shall remain in effect unless otherwise modified or terminated. Any Party may withdraw upon 30 days written notification to the others.

MODIFICATIONS: This MOU can be modified through mutual written agreement among the Parties.

ADMINISTRATION: Agencies will strive to incorporate and adopt, as appropriate and practical, the attached *Guiding Principles* into existing agency policy and guidance within 180 days of signature. To assist with this effort, the Interagency Sustainability Working Group (ISWG) will provide technical guidance and updates for the *Guiding Principles*.

The Office of the Federal Environmental Executive will work with the ISWG and Federal Green Building Council to develop methods of reporting on progress towards this MOU in a manner that is least burdensome to the agencies. This may include incorporating reporting into existing mechanisms, such as executive order reports; but in any case with a goal of avoiding a separate reporting process.

**GUIDING PRINCIPLES
FOR
FEDERAL LEADERSHIP IN HIGH PERFORMANCE AND SUSTAINABLE
BUILDINGS**

I. Employ Integrated Design Principles

Integrated Design. Use a collaborative, integrated planning and design process that

- Initiates and maintains an integrated project team in all stages of a project's planning and delivery;
- Establishes performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals; and, ensures incorporation of these goals throughout the design and lifecycle of the building; and,
- Considers all stages of the building's lifecycle, including deconstruction.

Commissioning. Employ total building commissioning practices tailored to the size and complexity of the building and its system components in order to verify performance of building components and systems and help ensure that design requirements are met. This should include a designated commissioning authority, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report.

II. Optimize Energy Performance

Energy Efficiency. Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the Energy Star[®] targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the baseline building performance rating per the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE) and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.

Measurement and Verification. In accordance with DOE guidelines issued under section 103 of the Energy Policy Act of 2005 (EPA²), install building level utility meters in new major construction and renovation projects to track and continuously optimize performance. Compare actual performance data from the first year of operation with the energy design target. After one year of occupancy, measure all new major installations using the Energy Star[®] Benchmarking Tool for building and space types covered by Energy Star[®]. Enter data and lessons learned from sustainable buildings into the High Performance Buildings Database.
(www.eere.energy.gov/femp/highperformance/index.cfm)

III. Protect and Conserve Water

Indoor Water. Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements.

Outdoor Water. Use water efficient landscape and irrigation strategies, including water sense and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.

IV. Enhance Indoor Environmental Quality

Ventilation and Thermal Comfort. Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality.

Moisture Control. Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination.

Daylighting. Achieve a minimum of daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.

Low-Emitting Materials. Specify materials and products with low pollutant emissions, including adhesives, sealants, paints, carpet systems, and furnishings.

Protect Indoor Air Quality during Construction. Follow the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 1993. After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.

V. Reduce Environmental Impact of Materials

Recycled Content. For EPA-designated products, use products meeting or exceeding EPA's recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.

Biobased Content. For USDA-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.

Construction Waste. During a project's planning stage, identify local recycling and salvage operations that could process site related waste. Program the design to recycle or salvage at least 90 percent construction, demolition and land clearing waste, excluding soil, where markets or on-site recycling opportunities exist.

Ozone Depleting Compounds. Eliminate the use of ozone depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account life cycle impacts.

SIGNATORIES

The undersigned individuals hereby execute this MOU on behalf of their respective agencies. The Parties envision that other Federal agencies may wish to join this MOU. The Parties encourage all Federal agencies that support the MOU goals and objectives to do so by signing the MOU and applying the *Guiding Principles*.



Philip W. Grone

Deputy Under Secretary of Defense for Installations and
Environment
Department of Defense

24 January 2006
Date



Douglas L. Faulkner

Acting Assistant Secretary for Energy Efficiency
and Renewable Energy
Department of Energy

24 January 06
Date



David L. Winstead

Commissioner, Public Buildings Service
General Services Administration

24 January '06
Date



Robert J. Henke

Assistant Secretary for Management
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2/28/06
Date



P. Lynn Scarlett
Deputy Secretary
Department of the Interior

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Date



Ronald L. Deacon
Director, Facilities and Administrative Services
Department of Justice

1-24-2006

Date



Thomas C. Dorr
Under Secretary for Rural Development
Department of Agriculture

1-23-2006

Date



Olga M. Dominguez
Deputy Assistant Administrator for Infrastructure
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National Aeronautics and Space Administration

1/23/2006

Date



Donald Bathurst
Chief Administrative Services Officer
Department of Homeland Security

1/24/2006

Date



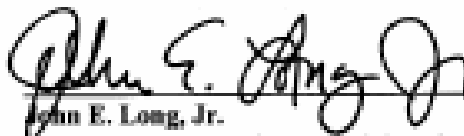
William C. Stamper
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Date



John E. Long, Jr.
Executive Vice President, Administrative Services
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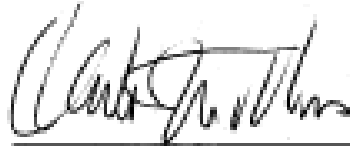
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Henrietta H. Fore
Under Secretary of State for Management
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General Charles E. Williams
Director/COO
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5/6/06
Date



Frank J. Coulter, Jr.
Deputy Assistant Secretary
Representing the Agency Environmental Executive
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Date



Keith Nelson
Assistant Secretary of Administration
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Date



Ronald C. Fleam
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Bryan Harbigan
Chief of Staff,
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1/24/06
Date



Patrick Pizzella
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Date



Otto J. Wolf
Chief Financial Officer and
Assistant Secretary for Administration,
Department of Commerce

2-23-06
Date

APPENDIX B

GUIDANCE FOR MEASURING SUSTAINABLE BUILDING PROGRAM IMPLEMENTATION PROGRESS

Sustainable design/green building is a relatively new issue for some agencies without the structure and mandates of other environmental initiatives. In light of this, OFEE facilitated the ISWG in establishing ‘milestones and deliverables’ that will allow Agencies to measure their progress towards implementing the Federal Leadership in High Performance and Sustainable Buildings MOU.

Phase	<u>Recommended Milestones and Deliverables for Measuring Progress</u>
1	<ul style="list-style-type: none"> • Issue Sustainable Design/Green Buildings Policy and Implementation Plan that: <ul style="list-style-type: none"> -Defines applicable building projects (i.e., new buildings, leases, build-to-lease projects, and major and minor renovations) based on building type, size, and/or budget. -Complies with OMB Circular A-11 Part 7 Section 300 - Planning, Budgeting, Acquisition, and Management of Capital Assets.
2	<ul style="list-style-type: none"> • Key programmatic framework activities are implemented including: policies, responsibilities, tracking, measurement, and funding requests. • Agency employs integrated teams at the earliest stages of project planning (i.e., pre-funding, conceptual design) for all capital asset projects involving new buildings, build-to-lease, and/or major renovations in order to address the Guiding Principles, except where written justification is provided. • The success stories and lessons learned for at least one major building project are reported into the High Performance Federal Buildings Database (<www.eere.energy.gov/femp/highperformance/index.cfm>) (provided the agency has an applicable project to report).
3	<ul style="list-style-type: none"> • All applicable ‘new start’ capital asset projects involving new buildings, build-to-lease, and/or major renovations incorporate the Guiding Principles, except where written justification is provided. • In order to apply the Guiding Principles to “in process” building projects, all business cases for new building construction or major renovations, developed per OMB A-11 Part 7 Section 300, incorporate the Guiding Principles, to the greatest extent practicable. • In order to maximize opportunities for incorporating the Guiding Principles into existing buildings, an Existing Building Strategy—which identifies priority facilities and environmental aspects (including energy use and IEQ), addresses minor renovations, and utilizes recommissioning as a tool—is developed and signed by senior officials.
4	<ul style="list-style-type: none"> • At least 5 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy.
5	<ul style="list-style-type: none"> • At least 10 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy. • At least 2 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.
6	<ul style="list-style-type: none"> • At least 25 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy. • At least 3 percent of agency’s existing building inventory incorporates the Guiding Principles to the greatest extent practicable.

<u>Phase</u>	<u>Recommended Milestones and Deliverables for Measuring Progress</u>
7	<ul style="list-style-type: none"> • At least 40 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy. • At least 6 percent of agency's existing building inventory incorporates the Guiding Principles to the greatest extent practicable.
8	<ul style="list-style-type: none"> • At least 60 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy. • At least 9 percent of agency's existing building inventory incorporates the Guiding Principles to the greatest extent practicable.
9	<ul style="list-style-type: none"> • At least 80 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy. • At least 12 percent of agency's existing building inventory incorporates the Guiding Principles to the greatest extent practicable.
10	<ul style="list-style-type: none"> • 100 percent of priority existing facilities have undergone sustainability recommissioning per the Existing Building Strategy. • At least 15 percent of agency's existing building inventory incorporates the Guiding Principles to the greatest extent practicable.

APPENDIX C

HHS POLICY for SUSTAINABLE BUILDINGS and HIGH PERFORMANCE BUILDINGS




DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of the Secretary

September 8, 2006

Washington, D.C. 20201

TO: Facility Directors
Operating Divisions

FROM: William C. Stamper, 
Deputy Assistant Secretary
Office for Facilities Management and Policy

SUBJECT: Transmittal of HHS Policy for Sustainable and High Performance Buildings

Attached is the HHS Policy for Sustainable and High Performance Buildings requiring each Operating Division to incorporate sustainable and high performance design principles in the planning, acquiring, siting, designing, building, operating, maintaining and decommissioning of all HHS facilities. This policy incorporates the *Guiding Principles* of the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding. Collaboration across the Operating Divisions was instrumental in defining the policy, and I wish to personally thank you and your staff for your participation.

The policy will be posted on the OFMP website and incorporated into the next update of the HHS Facilities Program Manual, Volume 1. If you have any questions regarding this policy, please contact Diane Stewart at (202) 205-4773.

Attachment

HHS Policy for Sustainable and High Performance Buildings

Table of Contents

1. Purpose
2. Background
3. Policy
4. Scope
5. Role and Responsibilities
6. Information and Assistance
7. Effective Date/Implementation

1. PURPOSE

To promote the health of the public and our employees and minimize potential impacts of our mission activities on the environment, each Operating Division (OPDIV) of the Department of Health and Human Services will incorporate sustainable and high-performance design principles in the planning, acquiring, siting, designing, building, operating, maintaining and decommissioning of all facilities.

2. BACKGROUND

In January 2006, the Department of Health and Human Services joined 18 other federal agencies and authorities in signing the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU) at the White House Summit on Federal Sustainable Buildings. A provision of that MOU was to establish implementation strategy within 180 days of the date of signature. Executive Order 13327 and HHS Real Property Asset Management Plan call for the Department to establish a sustainability policy.

As outlined in the MOU, sustainability is the outcome of an integrated process of facility development incorporating a balance of life-cycle cost, environmental impact and occupant health and safety, security, and productivity. The primary elements of sustainable design contained in the MOU are:

- Employ Integrated Design Principles
 - Integrated Design
 - Commissioning
- Optimize Energy Performance
 - Energy Efficiency
 - Measurement and Verification

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HHS Policy for Sustainable and High Performance Buildings

- Protect and Conserve Water
 - Indoor Water
 - Outdoor Water
- Enhance Indoor Environmental Quality
 - Ventilation and Thermal Comfort
 - Moisture Control
 - Daylighting
 - Low-Emitting Materials
 - Protect Indoor Air Quality during Construction
- Reduce Environmental Impact of Materials
 - Recycled Content
 - Bio-based Content
 - Construction Waste
 - Ozone Depleting Compounds

3. POLICY

All construction projects will incorporate the primary elements of the MOU into the planning, design and construction processes. Facilities constructed with Federal funds under the scope of this policy, which have a total project cost equal to or greater than \$3 million, will obtain certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) or the Green Building Initiative's Green Globes green building rating system.

Existing facilities will incorporate the primary elements of the MOU to the maximum extent feasible in all improvements and repair projects, which have a total project cost equal to or greater than \$1 million, and in all maintenance projects, which have a total project costs equal to or greater than \$3 million. In addition to incorporating the primary elements of the MOU, improvements and repair projects, which have a total project cost equal to or greater than \$3 million, will obtain certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED™) or the Green Building Initiative's Green Globes green building rating system.

All leased facilities shall incorporate the primary elements of the MOU to the maximum extent feasible as one criterion for lease evaluation.

Requests for waivers shall be considered on a case-by-case basis for individual projects. The Deputy Assistant Secretary, Office for Facilities Management and Policy, Office of the Assistant Secretary for Administration and Management (OFMP/ASAM) must approve waivers and any other exceptions to the provisions of this policy.

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HHS Policy for Sustainable and High Performance Buildings

4. SCOPE

This policy for Sustainable and High Performance Buildings applies to all real property assets under the control of the Department and all OPDIVs, including all assets that are reported in the HHS Automated Real Property Inventory System (ARIS), whether owned and operated by HHS, or operated on behalf of HHS. This policy does not apply to tribally owned and operated facilities under the authorities of P.L. 93-638.

5. ROLES AND RESPONSIBILITIES

5.1 Deputy Assistant Secretary, Office for Facilities Management and Policy, Office of the Assistant Secretary for Administration and Management

The HHS Office for Facilities Management and Policy will serve as the principal point of contact for sustainable design and construction activities and will:

- a. Monitor compliance with this policy for all capital assets as defined in OMB Circular A-11 Part 7.
- b. Review and approve exceptions to this policy for capital assets through the Facilities Project Approval Agreement (FPAA) documentation.
- c. Conduct an annual Lessons Learned workshop to address sustainability and its application in HHS projects.

5.2 Operating Divisions (OPDIVs)

Individual OPDIVs will manage the planning, design, construction, operation and maintenance of their facilities to ensure compliance with this policy. Each OPDIV shall develop a plan that includes:

- a. Policies, procedures and plans to ensure compliance with this policy and the Department's Implementation Plan and Guidelines associated with this policy.
- b. A data collection mechanism that ensures the reporting requirements of this policy are achieved.
- c. A self audit process to assess the OPDIV's implementation progress and compliance with this policy.
- d. Documentation of sustainability on individual projects through the FPAA.

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HHS Policy for Sustainable and High Performance Buildings

6. INFORMATION AND ASSISTANCE

6.1 Executive Orders

Executive Order 13101: Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition

Executive Order 13123: Greening the Government Through Efficient Energy Management

Executive Order 13134: Developing and Promoting Biobased Products and Bioenergy

Executive Order 13148: Greening the Government Through Leadership in Environmental Management

Executive Order 13149: Greening the Government Through Federal Fleet and Transportation Efficiency

Energy Policy Act of 2005 (EPAct 2005)

6.2 Other Directives

OMB Circular A-11, Part 7, Planning, Budgeting, Acquisition, and Management of Capital Assets

The Federal Leadership in High Performance and Sustainable Buildings, Memorandum of Understanding

6.3 Assistance

FedCenter - www.fedcenter.gov

US Green Building Council – www.usgbc.org

Office of the Federal Environmental Executive – www.OFEE.gov

Whole Building Design Guide – www.wbdg.org

Green Building Initiative – www.thegbi.org

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HHS Policy for Sustainable and High Performance Buildings

7. EFFECTIVE DATE/IMPLEMENTATION

The following requirements provide a timeline for phasing in the implementation of this policy. Following this timeline will ensure sustainability has a direct link to the HHS budget process.

- a. Each Landholding OPDIV shall incorporate this policy into at least one project requiring a FPAA submittal by the 2008 Fiscal Year.
- b. Each landholding OPDIV shall incorporate this policy into at least 50% of projects requiring a FPAA submittal for the 2009 Fiscal Year.
- c. Each landholding OPDIV shall incorporate this policy into 100% of eligible projects for the 2010 Fiscal Year and beyond.

This policy directive is effective upon date of signature and transmittal.

APPENDIX D

DEFINITIONS – APPLICABLE BUILDING PROJECTS

	<i>DEFINITIONS:</i>	<i>REQUIREMENTS:</i>
CONSTRUCTION All HHS projects meeting the definition of “construction” in the HHS Facilities Manual	New buildings	Must meet MOU requirements \$3M or more: must be certified (Green Globes or LEED)
	Additions	
	Build-to-Lease: any building (not owned by HHS) built to HHS requirements or specifications	
LEASES Leased space of 5,000 or more usable square feet	GSA buildings (federally-owned), with Occupancy Agreements	Meet MOU to the maximum extent feasible. Monitor GSA-identified MOU and certification requirements: <ul style="list-style-type: none"> • Include sustainability in SFO • Include sustainability in POR • Include sustainability in Award Factors For Delegated Buildings , ensure that MOU is incorporated to the maximum extent feasible in the O&M
	GSA leased (not federally-owned), with Occupancy Agreements	Meet MOU to the maximum extent feasible. Monitor GSA incorporation of MOU requirements: <ul style="list-style-type: none"> • Include sustainability in SFO • Include sustainability in POR Include sustainability in Award Factors
	Direct leases	Meet MOU to maximum extent feasible: <ul style="list-style-type: none"> • Include sustainability in SFO • Include sustainability in POR • Include sustainability in Award Factors

	<i>DEFINITIONS:</i>	<i>REQUIREMENTS:</i>
MAJOR RENOVATIONS HHS-owned property	Improvements and Repair projects (as defined in the HHS Facilities Program Manual) of \$1M or more	Must meet the MOU to the maximum extent feasible
	Maintenance projects(as defined in the HHS Facilities Program Manual) of \$3M or more	Over \$3M in Improvements/Repairs must also be certified (Green Globes or LEED)
MINOR RENOVATIONS HHS-owned property	Improvements and Repair projects (as defined in the HHS Facilities Program Manual) of less than \$1M	MOU/Policy does not apply
	Maintenance projects (as defined in the HHS Facilities Program Manual) of less than \$3M	
EXTRAMURAL CONSTRUCTION	Grant funded	OPDIVs are encouraged to include sustainability guidelines in their grant solicitations

APPENDIX E

INTEGRATED PROJECT TEAM DEFINITION & TEAM CHARTER

Each project shall have a core Integrated Project Team (IPT) that shall be cross-functional to accomplish the various tasks of the project. Expertise required shall be based on specific project scope and size. Members should reflect the user community, the project's stakeholders and should have core knowledge of project management, budget, finance, sustainable design and procurement. An assessment shall be made of the availability of internal or external resources. The IPT shall be assembled according to the guidance provided in OMB Circular A-11, Section 7, Appendix 2. An IPT Charter, which outlines IPT membership and responsibilities, shall be created. If a Project Definition Rating Index (PDRI) assessment is required, core team members must participate.

Integrated Project Team Definition

For HHS-owned properties, the IPT shall be led by the Program Manager, Project Manager, or Team Leader (the first signatory on the FPAA). The IPT shall also include the Contracting Officer, a Sustainability Coordinator or Green Building Specialist (preferably one who is LEED certified), and a representative of the end user group. The IPT should also include stakeholders from Operations & Maintenance, Financial, Environmental, Health and Safety, Security, IT, and Facilities/Space Planning.

For delegated leased properties, the IPT shall be led by the warranted Contracting Officer. The IPT shall include the Project Officer, a Green Buildings Specialist (LEED certified), and a representative of the end user group. The IPT should also include stakeholders from Operations & Maintenance, Financial, Environmental, Health and Safety, Security, IT, and Facilities/Space Planning.

For GSA assignments, the GSA representative shall lead the IPT in the Contracting Officer capacity, and an OPDIV/STAFFDIV-appointed team leader (Acquisitions/Project Officer) shall provide liaison and coordination for the IPT. The Contracting Officer and the HHS Team Leader shall assemble a team to include, but not limited to, the end user and representatives from GSA/HHS who are versed in Green Buildings, Operations & Maintenance, Financial, Environmental, Health and Safety, Security, IT, and Facilities/Space Planning. If resources are available, HHS should fill these roles since they are the primary stakeholders.

Integrated Project Team (IPT) Charter Leased Facilities

(This is a living document and will be updated as required.)

HHS Operating Division: *(NIH, CDC, etc.)*

Operating Division's Component: *(occupant/end user)*

Location of New Facility: *(address)*

Lease: *(Lease Identification)*

Description: *(Purpose of Acquisition, i.e., New Program Initiative, New Hires, Support Space, Labs, etc.)*

Date: *(Date Prepared)*

Revised Date: *(Date Updated)*

Prepared by: *(Name/Title)*

IPT Lead: *(Name/Title)*

Lease/Project Milestones: *(Summarize or attach a schedule)*

IPT:

List each team member and their responsibilities; provide contact information to include name, phone, fax, cell phone, e-mail, and mailing address. Team members and their responsibilities may include the following:

- **Contracting Officer**
For landholding Agency with Contracting Officers (CO), the CO is the lead, and develops Solicitation for Offer (SFO), and modifies, executes, and enforces the Lease, notwithstanding any other provisions of law.
- **Realty Specialist**
Lease Administrator to include, but not limited to, preparing obligation document(s); negotiating on behalf of the government with the Lessor, processing invoices, etc. as approved by the Contracting Officer.
- **Project Manager**
Responsible for representing the Agency in development of technical requirements to include, but not limited to, design and construction as it relates to the Program of Requirements and design documents. Project Manager (PM) will communicate with the Lessor representatives on technical requirements that are within scope, cost Not to Exceed (NTE), schedule and policy. Technical requirements that are outside of the scope, cost, schedule or policy must be approved by the Contracting Officer.
- **Occupant/End User Representative(s)**
(Usually Executive Officer or their designee.)
Responsible for commitment of rents throughout the term of the lease and funding all lump sum Government expenses related to the lease, informal communications and overall program requirements.

- **Physical Security**
Responsible for developing security requirements and incorporating them into the POR/SFO. Direct leases will require Security Officer lease concurrence prior to lease execution. Security requirements are per the ISC recommendations and should be identified in Section 9 of the Solicitation for Offer (SFO). Section 9 of the SFO is a template of security requirements requiring the Security Specialist to further define existing or build-to-lease requirements. Lessor will be responsible for coordinating schedule activities with Government vendors.
- **IT/Telecommunications**
Responsible for developing data/telephone requirements as stated in the SFO, POR or attachment of standards. Lessor will be responsible for coordinating schedule activities with Government vendors.
- **Environmental Health and Safety (EHS) Specialist**
Responsible for reviewing compliance with regulations and OPDIV requirements relating to EHS aspects of facility designs and facilities offered by lessors. The documentation may include, but is not limited to, design drawings; specifications; sampling and analysis data; reports from environmental audits, site assessments and surveys; air and other indoor environmental monitoring data; descriptions of safety and accessibility features; waste management plans; data on water and energy use relating to sustainability; reports from environmental audits, site assessments and surveys; and offers submitted by lessors.
- **Sustainability/Green Building Specialist**
(*Preferably LEED™/Green Globes certified.*)
Responsible for coordinating sustainability issues.
- **Procurement Specialist**
Responsible for coordinating the purchase of services, materials and equipment in support of the project, i.e., fixtures, furnishings, equipment, moving services, etc.
- **Construction Quality Manager (CQM)**
Per contract, is responsible for assisting the PM or COTR in the quality control of the technical requirements to include, but not limited to, design, construction, cost estimating and post construction/occupancy services specified in the CQM Scope of Work (SOW).
- **Lessor**
Responsible for the performance of the Lease and any subsequent Supplemental Lease Agreements (SLA).
- **Lessor General Contractor(s)**
As per the SFO, the Lessor is responsible for the performance of construction in accordance with the Lease.

- **Lessor Architect-Engineer**

As per the SFO, the Lessor is responsible for the design meeting all requirements under the SFO and local, state and federal codes.

Communication Plan:

The IPT shall develop a communication plan addressing lines and methods of communications for information, approvals, changes, etc.

- **Formal** is defined as any written agreement or notification that may result in a contractual modification or any changes to scope, budget and schedule. The IPT must review and concur with such modifications and changes. All contractual requirements that affect the POR, schedule, process and cost must have been reviewed by and have signature approval of the Contracting Officer and Lessor.
- **Informal** is defined as the everyday communication and dissemination of information that normally occurs via telephone or email. This should not result in any changes to scope, budget, schedule or process.

Disputes:

The IPT shall develop a process for handling disputes within the IPT.

Risk Management Plan:

The IPT shall identify internal and external factors that require contingency planning or risk analysis and planning, and consider mitigation measures. Examples may include:

- **Schedule**
The IPT shall develop a project schedule and identify potential impacts to timely completion of the project. The construction schedule is made part of the Lease and will be updated as required and forwarded to appropriate parties.
- **Budget Estimate**
The IPT shall develop a process to track project budget and expenditures.
- **Construction Services**
The method for delivering the space shall be defined. The IPT shall develop specific requirements and timelines for the Lessor to minimize change orders, delay of the project and cost overruns.
- **Customer Management/Care issues**
Through its communications plan the IPT shall identify and assess how to deal with day-to-day management of the project to ensure involvement of all stakeholders.

Closeout:

The IPT will perform a walkthrough of the substantially completed space and prepare a punch list for the Lessor. The Contracting Officer is responsible for acceptance of substantial completion and will consult with Project Manager and include a punch list with the sign off.

Integrated Project Team (IPT) Charter HHS Owned Facilities

(This is a living document and will be updated as required)

HHS Landholding Operating Division: *(NIH, CDC, etc.)*

Operating Division's Component: *(occupant/end user)*

Location of New Facility: *(address)*

Project: *(Name of project, project number)*

Description: *(Purpose of Acquisition, i.e., New Program Initiative, New Hires, Support Space, Labs, etc.)*

Date: *(Date Prepared)*

Revised Date: *(Date Updated)*

Prepared by: *(Name/Title)*

IPT Lead: *(Name/Title)*

Construction schedule: *(Summarize or attach a schedule)*

IPT:

List each team member and their responsibilities; provide contact information to include name, phone, fax, cell phone, e-mail, and mailing address. Team members and their responsibilities may include the following:

- **Project Manager/Project Officer**
Project Manager/Project Officer (PM/PO) leads IPT. PM/PO is responsible for coordinating all technical requirements including project planning and programming, project management through design and construction, and ensuring incorporation of all policies and guidelines. All design and construction requirements will be directed through the Project Manager to the Contractor unless there contractual change outside the scope, cost or schedule. The PM/PO will communicate regularly with the Contracting Officer to avoid any inadvertent changes to the contract terms.
- **Contracting Officer (CO)**
Responsible for developing and executing contract instruments, coordinating source selection criteria, ensuring that evaluation plan is adhered to, receiving evaluation plan consensus in order to make an award according to the award factors, ensuring that funds are available, modifying and enforcing the contract, obligating funds on behalf of the government, negotiating on behalf of the government with the Contractor, authorizing on behalf of the government, and approving invoices and committing funds.
- **Occupant/End User Representative(s)**
Usually Executive Officer or their designee; may also include Finance Officer and/or Administrative Officer.)
Responsible for budgeting, overall program requirements, certifying funds availability and internal budget/finance coordination, and overall program requirements.

- **Physical Security**
Responsible for developing and incorporating physical security requirements that meet the ISC recommendations into the project. Physical security requirements may include shatter-resistant materials, progressive collapse requirements, etc.
- **IT/Telecommunications**
Responsible for developing data/telephone requirements and coordinating with the construction schedule for cabling rough-in.
- **Environmental Health and Safety (EHS) Specialist**
Responsible for reviewing compliance with regulations and OPDIV requirements relating to EHS aspects of facility design. The documentation may include, but is not limited to, design drawings; specifications; sampling and analysis data; reports from environmental audits, site assessments and surveys; air and other indoor environmental monitoring data; descriptions of safety and accessibility features; waste management plans; data on water and energy use relating to sustainability; and reports from environmental audits, site assessments and surveys.
- **Sustainability/Green Building Specialist**
(Preferably LEED™/Green Globes certified.)
Responsible for coordinating sustainability issues.
- **Operations & Maintenance**
Responsible for ensuring that the building's infrastructure is designed and built to ensure overall operability and maintainability. Also a key player in commissioning and ensuring proper systems documentation at project turnover.
- **Procurement Specialist**
Responsible for coordinating the purchase of services, materials and equipment in support of the project, i.e., fixtures, furnishings, equipment, moving services, etc.
- **Real Property Acquisition Officer**
Responsible for property acquisition and/or changes to the property.
- **Construction Quality Manager (CQM)**
Per contract, is responsible for assisting the CO by performing the pre-design, design, procurement, construction phase, and post-construction claims services specified in the CQM contract, and for maintaining working relationship with the architect-engineer and construction contractor(s). The CQM is not responsible for duties of other government contracts listed below, such as architect-engineer or construction contractor(s).

- **Architect-Engineer**
Responsible for designing the project, and for performing all design-related services in accordance with its government contract.
- **Construction Contractor(s)**
Responsible for constructing (means, methods, sequence and procedures used in the construction project), and for related performance in accordance with its government contract.

Communication Plan:

The IPT shall develop a communication plan addressing lines and methods of communications for information, approvals, changes, etc.

- **Formal** is defined as any written agreement or notification that may result in a contractual modification or any changes to scope, budget and schedule. The IPT must review and concur with such modifications and changes. All contractual requirements that affect the POR, schedule, process and cost must have been reviewed by and have signature approval of the Project Officer, Contracting Officer and Contractor.
- **Informal** is defined as the everyday communication and dissemination of information that normally occurs via telephone or email. This should not result in any changes to scope, budget, schedule or process.

Disputes:

The IPT shall develop a process for handling disputes within the IPT.

Risk Management Plan:

The IPT shall identify internal and external factors that require contingency planning or risk analysis and planning, and consider mitigation measures. Examples may include:

- **Schedule**
The IPT shall develop a project schedule and identify potential impacts to timely completion of the project. The construction schedule is made part of the construction contract and will be updated as required and forwarded to appropriate parties.
- **Budget Estimate**
The IPT shall develop a process to track project budget and expenditures.
- **Construction Services**
The method for delivering the space shall be defined. The IPT shall develop specific requirements and timelines for the A/E and Construction Contractor to minimize change orders, delay of the project and cost overruns.
- **Customer Management/Care issues**
Through its communications plan the IPT shall identify and assess how to deal with day-to-day management of the project to ensure involvement of all stakeholders.

Closeout:

The IPT will perform a walkthrough of the substantially completed space and prepare a punch list for the Contractor. The Contracting Officer and/or Project Officer are responsible for acceptance of substantial completion and will consult with Project Manager and include a punch list with the sign off.

APPENDIX F
SUSTAINABILITY PERFORMANCE TARGETS

Performance goals in the MOU not defined herein as mandatory shall be considered by the IPT for incorporation based on the specific scope of the project

	DEFINITIONS:	REQUIREMENTS:	APPLICATIONS:	MANDATORY GOALS
CONSTRUCTION All HHS projects meeting the definition of “construction” in the HHS Facilities Manual	New buildings	Must meet all MOU requirements	All new capital project starts not previously submitted to OMB, FY 2007 and forward	<ul style="list-style-type: none"> • Integrated Design including Integrated Project Team (IPT), performance goals and Life Cycle Cost analysis • Commissioning • Energy performance (EPA 2005 and EO 13423) • Water conservation (EO 13423) • Ventilation & Thermal Comfort • Moisture control • Daylighting • Low-emitting materials • Indoor air quality during construction • Recyclable content • Biobased content • Construction waste • Ozone depleting compounds
	Additions			
	Build-to-Lease: any building (not owned by HHS) built to HHS requirements or specifications	\$3M or more: must be certified (Green Globes or LEED)		

	DEFINITIONS:	REQUIREMENTS:	APPLICATIONS:	MANDATORY GOALS
LEASES Leased space of 5,000 or more usable square feet	GSA buildings (federally-owned), with Occupancy Agreements	Monitor GSA-identified MOU and certification requirements: <ul style="list-style-type: none"> • Include sustainability in SFO • Include sustainability in POR • Include sustainability in Award Factors For Delegated Buildings , ensure that MOU is incorporated to the maximum extent feasible in the O&M	All new leases initiated in FY 2008 and forward, with approved Business Case	<ul style="list-style-type: none"> • IPT • Energy performance (EPAct 2005 and EO 13423) • Water conservation (EO 13423) • Ventilation & Thermal Comfort • Moisture control • Low-emitting materials • Indoor air quality during construction • Recycled content • Biobased content • Construction waste • Ozone depleting compounds
	GSA leased (not federally-owned), with Occupancy Agreements	Monitor GSA incorporation of MOU requirements: <ul style="list-style-type: none"> • Include sustainability in SFO • Include sustainability in POR Include sustainability in Award Factors		<ul style="list-style-type: none"> • IPT • Energy performance (EPAct 2005 and EO 13423) • Water conservation plan • Ventilation & Thermal Comfort • Moisture control • Low-emitting materials • Indoor air quality during construction

	DEFINITIONS:	REQUIREMENTS:	APPLICATIONS:	MANDATORY GOALS
				<ul style="list-style-type: none"> • Recycled content • Biobased content • Construction waste • Ozone depleting compounds
	Direct leases	Meet MOU to maximum extent feasible: <ul style="list-style-type: none"> • Include sustainability in SFO • Include sustainability in POR • Include sustainability in Award Factors 		<ul style="list-style-type: none"> • IPT • Energy performance (EPAct 2005 and EO 13423) • Water conservation plan • Ventilation & Thermal Comfort • Moisture control • Low-emitting materials • Indoor air quality during construction • Recycled content • Biobased content • Construction waste • Ozone depleting compounds
MAJOR RENOVATIONS HHS-owned property	Improvements and Repair projects (as defined in the HHS Facilities Program Manual) of \$1M or more	Must meet the MOU to the maximum extent feasible	All new projects initiated in FY 2007 and forward, which do not have an approved FPAA as of the date of issuance of the revised Implementation Plan.	<ul style="list-style-type: none"> • IPT • Energy performance (EPAct 2005 and EO 13423) • Water conservation (EO 13423) • Ventilation & Thermal Comfort
	Maintenance projects(as defined in the HHS Facilities Program Manual) of \$3M or more	Over \$3M in Improvements/Repairs must also be certified (Green Globes or LEED)		

	<i>DEFINITIONS:</i>	<i>REQUIREMENTS:</i>	<i>APPLICATIONS:</i>	<i>MANDATORY GOALS</i>
			(Similar to application of ADA – the element or area of work repaired or improved must meet the requirements, not the entire system.)	<ul style="list-style-type: none"> • Moisture control • IAQ during construction • Recycled content • Biobased content • Construction waste • Ozone depleting compounds
MINOR RENOVATIONS HHS-owned property	Improvements and Repair projects (as defined in the HHS Facilities Program Manual) of less than \$1M	MOU/Policy does not apply		
	Maintenance projects (as defined in the HHS Facilities Program Manual) of less than \$3M			
EXTRAMURAL CONSTRUCTION	Grant funded	OPDIVs are encouraged to include sustainability guidelines in their grant solicitations		

APPENDIX G
SUSTAINABILITY CHECKLIST
For Leased Properties

Applies to:

- GSA assignments and Direct Leases of 5,000 or more usable square feet
- All new direct lease actions and GSA assignments initiated in 2008 and beyond, with approved Business Case

Mandated Requirements:	Requirement Definition:	How Is Requirement Met?
Integrated Project Team (IPT)	Initiates and maintains an integrated project team in all stages of a project's planning and delivery.	
Energy Performance (EPAct 2005 and EO 13423)	<p>Establish a whole building performance target that takes into account the five <i>Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings</i> and earns the Energy Star® targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the ASHRAE and IESNA baselines. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline. In addition, all government-owned military housing shall incorporate the sustainable design/high performance building goals/principles.</p> <p>EO 13423 requires reduction of energy intensity by 3% annually through the end of fiscal year 2015 or 30% by the end of fiscal year 2015, relative to the baseline of the agency's energy use in fiscal year 2003.</p> <p>EPAct 2005 requires renewable electricity consumption by the Federal government can not be less than 3% in FY 2007 to FY 2009, 5% in FY 2010 to FY 2012, and 7.5% in 2013 and thereafter. In addition, EO 13423 requires that at least half of renewable energy comes from new (after 1/1/1999) renewable sources.</p>	

Mandated Requirements:	Requirement Definition:	How Is Requirement Met?
Water Conservation (EO 13423)	<p>Indoor Water: Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements.</p> <p>Outdoor Water: Use water efficient landscape and irrigation strategies, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.</p> <p>Beginning in FY 2008 per EO 13423, reduce water consumption intensity, relative to the baseline of the agency's water consumption in FY 2007, through life-cycle cost-effective measures by 2 percent annually through the end of FY 2015 or 16 percent by the end of FY 2015.</p>	
Ventilation & Thermal Comfort	Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality.	
Moisture Control	Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination.	
Low-emitting Materials	Specify materials and products with low pollutant emissions, including adhesives, sealants, paints, carpet systems, and furnishings.	
Protect Indoor Air Quality during Construction	Follow the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 1995. After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air	

Mandated Requirements:	Requirement Definition:	How Is Requirement Met?
	consistent with achieving relative humidity no greater than 60 percent. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials	
Recycled Content	For EPA-designated products, use products meeting or exceeding EPA's recycled content recommendations. For other products, use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.	
Biobased Content	For USDA-designated products, use products meeting or exceeding USDA's biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.	
Construction Waste	During a project's planning stage, identify local recycling and salvage operations that could process site related waste. Program the design to recycle or salvage at least 50 percent construction, demolition and land clearing waste, excluding soil, where markets or on-site recycling opportunities exist.	
Ozone Depleting Compounds	Eliminate the use of ozone depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account life cycle impacts.	

APPENDIX H

HHS EXISTING BUILDING SUSTAINABILITY EVALUATION AND PRIORITIZATION MATRIX	
Building name:	
Location:	
Date of Assessment:	
Prepared by:	
Mission Criticality: <input type="checkbox"/> Mission Critical <input type="checkbox"/> Mission Dependent <input type="checkbox"/> Not Mission Dependent	
Commissioning/Recommissioning: <input type="checkbox"/> Completed - date: <input type="checkbox"/> Not completed <input type="checkbox"/> Not Applicable	
Assessment Report attached? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>The Assessment Report should include a comprehensive list of the building's strengths, weaknesses and deficiencies; a prioritized list of deficiencies that can be addressed by minor alterations or repairs (considering payback over the life cycle); and a status summary indicating whether a major renovation or replacement of the facility (and estimated time frame) is recommended by the assessment team.</i>	

Building Attribute		Attribute Definition	Building Condition Scoring Criteria						
			0	10-30	30-50	50-70	70-90	90-100	Score Assigned
A	Energy Performance	Effectiveness of energy conservation measures.	Energy efficiency is a minimum of 3% annually or 30% total below the 2003 baseline energy use. Building-level utility meters are installed. Performance data is collected and entered in High Performance Buildings	Energy efficiency is a minimum of 2% annually or 15% total below the 2003 baseline. Building-level meters are installed. Performance data is collected.	Energy efficiency is less than 2% annually or 15% total below 2003 baseline. Building-level meters are installed. Performance data is collected.	Energy efficiency is at baseline. Energy conservation program is in place. Building-level meters are installed; but no performance data has been collected to date.	Energy efficiency is at baseline. Energy conservation program is under development. Building-level meters are not installed.	Energy efficiency is at or above baseline. No energy conservation program is in place. No building-level meters are installed.	

Building Attribute		Attribute Definition	Building Condition Scoring Criteria						
			0	10-30	30-50	50-70	70-90	90-100	Score Assigned
			database.						
B	Water Conservation	Effectiveness of water conservation measures, both indoors and outdoors.	Water consumption intensity is a minimum of 2% annually or 16% total below the 2007 baseline water consumption.	Water consumption intensity is a minimum of 1% annually or 8% total below the 2007 baseline. Water reuse and recycling used to reduce outdoor water usage.	Water consumption intensity is less than 1% annually or 8% total below the 2007 baseline. Water reuse and recycling used to reduce outdoor water usage.	Water consumption intensity is at baseline. Water conservation program is in place for both indoor and outdoor usage. Water reuse and recycling used to reduce outdoor water usage.	Water consumption intensity is at baseline. Water conservation program is under development or partially implemented for indoor and/or outdoor usage.	Water consumption intensity is at or above baseline. No water conservation program is in place for either indoor or outdoor usage.	
C	Indoor Environmental Quality	Effectiveness of measures to enhance indoor environmental quality, including ventilation and thermal comfort, moisture control, daylighting (where applicable), low-emitting materials, and indoor air quality during construction.	Meets ASHRAE Standards 55-2004 and 62.1-2004. A moisture control strategy is in place. A policy is in place to use low-emitting materials. A minimum daylight factor of 2% (where applicable) has been achieved in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards; moisture control strategy is in place. A policy is in development to use low-emitting materials. A minimum daylight factor of 1% has been achieved in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards; moisture control strategy is in place. A policy is in development to use low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards; moisture control strategy is in place. There is no policy on the use of low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	Meets ASHRAE standards. Moisture control strategy is not in place. There is no policy on the use of low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	Does not meet ASHRAE standards and moisture control strategy is not in place. There is no policy on the use of low-emitting materials. Daylight factor of is less than 1% in 75% of all space occupied for critical visual tasks.	
D	Environmental Impact of Materials	Effectiveness of measures to reduce the environmental impact of materials used in renovations, repairs, and operations and maintenance.	Policies are in place to use products that meet or exceed EPA's recycled content recommendations and USDA's biobased content recommendations. Ozone depleting	Policy is in place to use products that meet recycled content; policy is not in place to use products that meet biobased content (or vice versa). Ozone depleting compounds have	Policy is in place to use products that meet recycled content; policy is not in place to use products that meet biobased content (or vice versa). Some ozone depleting	Policy is under development to address use of products that meet recycled content and biobased content. Some ozone depleting compounds remain in use.	No policies in place for use of recycled or biobased products. Some ozone depleting compounds remain in use.	No policies in place for use of recycled or biobased products. Ozone depleting compounds are in regular use.	

Building Attribute		Attribute Definition	Building Condition Scoring Criteria						
			0	10-30	30-50	50-70	70-90	90-100	Score Assigned
			compounds have been eliminated.	been eliminated.	compounds remain in use.				
E	<i>Economics</i>	Current and avoidable potential costs associated with ownership and use of buildings and potential payback for improvements over the remaining life cycle or lease.	Costs are equal to or lower than those for buildings supporting similar mission activities. No improvements required.	Costs are equal to buildings supporting similar mission activities; improvements not likely to yield payback over remainder of life cycle or lease.	Costs higher than comparable buildings; low potential for loss of capital assets and/or reductions in employee productivity if improvements are not made; improvements have minor potential for payback (in 5-10 years or remainder of life cycle or lease).	Costs higher than comparable buildings; moderate potential for loss of major capital assets and/or reductions in employee productivity if improvements are not made; moderate potential for payback from improvements (in 3-5 years or within current lease) is supported by formal documentation.	Costs significantly higher than comparable buildings; high potential for loss of major capital assets and/or reductions in employee productivity if improvements are not made; high potential for payback from improvements (less than 3 years) is supported by formal documentation.	Costs seriously jeopardize ability to retain facility or conduct mission; high potential for payback from improvements (less than 3 years or within current lease) is supported by formal documentation.	

APPENDIX I

ABBREVIATIONS & ACRONYMS

ARIS	Automated Real Property Inventory System
EMS	Environmental Management Systems
FPAA	Facility Project Approval Agreement
GSA	General Services Administration
HHS	Department of Health and Human Services
IDIQ	Indefinite delivery / indefinite quantity
IEQ	Indoor Environmental Quality
IP	Implementation Plan
IPT	Integrated Project Team
LEED	Leadership in Energy and Environmental Design
MOU	Memorandum of Understanding
NLT	No later than
OA	Occupancy Agreement
OFEE	Office of the Federal Environmental Executive
OFMP	Office for Facilities Management & Policy (HHS)
O&M	Operations & Maintenance
OMB	Office of Management and Budget
OPDIV	Operating division (within HHS)
PDRI	Project Definition Rating Index
POR	Program of Requirements
RAMP	(HHS) Real Property Asset Management Plan
SFO	Solicitation for Offers
WBDG	Whole Building Design Guide

APPENDIX J

Matrix of Current Status of Implementation within OPDIV's

Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
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I. Employ Integrated Design Principles

Integrated Design. Use a collaborative, integrated planning and design process that:

Initiates and maintains an integrated project team in all stages of a project's planning and delivery	Each OPDIV shall establish an integrated project team (IPT) approach that ensures a project sustainability strategy is incorporated consistent with the policy.	Currently the CDC design guidelines include: <ul style="list-style-type: none">Establishment of aggressive energy and water conservation goals early in the project planning stageEstablishment of a core team and extended energy technology core team with specific leadership and line of responsibility that set goals of technologies to be used from the planning stage through design, construction and life cycle of the facilityUtilization of energy	The FDA establishes a core integrated project team at the project's initiation and through project completion. The integrated project team consists of an integrated multidisciplinary design team (A/E of Record), headed by an FDA project officer (engineer with specific project experience), customer relations manager, operations and maintenance personnel, environmental and occupational safety and health professionals, and in-house energy reviewer for energy intensive projects. In some instances the FDA utilizes a work shop process	The IHS establishes a Project Leadership Team at the beginning of planning. The team consists of Program representatives, Facility management, Tribal, Finance, Head Quarters Facility Planning staff, and Environmental staff.	Investigation of the project budgeting, planning, management, design and construction process at NIH revealed that the current process for new construction is not a well integrated approach due to organizational structure and federal procurement requirements. Recommendations to improve integration and use integrated project teams in all stages of project planning and delivery are being developed.
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	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
		<p>consultants to supplement engineering staff on energy intensive projects</p> <ul style="list-style-type: none"> Commissioning of all new buildings and HVAC systems undergoing renovation 	referred to as a “design charrette” to develop a whole building design that best meets both economic and environmental interest.		
<p>Establishes performance goals for siting, energy, water, materials, and indoor environmental quality along with other comprehensive design goals; and, ensures incorporation of these goals throughout the design and lifecycle of the building; and,</p>	<p>The IPT shall establish and monitor performance goals consistent with the sustainability strategy for the project and document in the FPAA.</p>	<p>The CDC has incorporated the sustainability MOU performance goals into the current design guidelines and measures performance by using the U.S Green Building Council’s Leadership in Energy and Environmental Design (LEED) or the Green Building Initiative’s Green Globes rating systems.</p> <p>Performance targets are also evaluated using www.eere.energy.gov/femp Building Life-Cycle Costing Program (BLCC 5.3-06), Target Base Energy Budget, GREENGUARD http://www.greenguard.org low emission products for interior spaces, and industry Best Management Practices</p>	<p>The FDA is in the process of developing sustainable design criteria that take into consideration environmental stewardship, social responsibility, a quality work environment, and conservation. The FDA will incorporate the Energy Policy MOU into our proposed design guidelines and verify measure of performance by either Leadership in Energy and Environmental Design (LEED) or Green Globe certification and life cycle cost analysis.</p>	<p>Some new goals are set by the team but most goals are set by the IHS A/E Design Guide.</p>	<p>The MOU Guiding Principles, as interpreted by HHS and applied to specific building types in use at the NIH will establish the required performance goals to be applied to all new construction projects and existing building stock at NIH. Requirements for conformance with these goals will be included in the next edition of the NIH Design Requirements Manual (DRM). Standard operating procedures are currently being reviewed for revisions necessary to meet the goals for existing buildings.</p>

	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
		<p>CDC is committed to excellence in the design and development of its facilities. The projected lifespan is 50 years. It is the goal of CDC to provide workplace environments that physically and psychologically enhance work performance. The work place should provide areas that are highly functional and promote, for an individual or group, a productive, interactive, safe and healthy environment.</p> <p>Facilities should be designed to ensure ease and efficiency of operations and allow for easy and cost effective maintenance and repair during the facilities useful life.</p>			
Considers all stages of the building's lifecycle, including deconstruction.	The performance goals shall include Life Cycle Cost Analysis (LCCA).	Refer to responses above.	FDA's proposed design guidelines will require the Integrated Project Team (IPT) to follow the fundamental principles set forth in EO 13123, which requires agencies to use building life-cycle	Through commissioning life cycle costs are considered but deconstruction of the new facility is not considered. Demolition of an existing facility is planned.	The proposed NIH policies, design criteria and Environmental Management Plans relating to facility sustainability are inherently focused upon lifecycle performance. Protocols for

Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
		<p>analysis on all projects. The IPT shall list sustainable design features where applicable, for all new and major renovations projects, comparing additional first cost against payback period regardless of how long or short the payback period may be, with a goal of designing sustainable projects with no additional first cost expenditures. The IPT shall consider conducting “trade-off” exercise, e.g., taking advantage of southern exposures, improving the energy efficiencies of the windows and walls and spending more on daylighting, thus reducing heating and cooling at the building’s perimeter and reduce the allowance for lighting fixtures, HVAC systems, etc. Protocols for decommissioning (i.e., facility assessments, remediation of contaminants, and waste minimization during decommissioning and deconstruction activities) are currently in place and being</p>		<p>facility assessment, remediation of contaminants, recycling of construction debris and waste minimization during decommissioning and deconstruction activities are currently in place and being implemented.</p>

	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
			implemented. Formal protocol for recycling of construction debris during decommissioning and deconstruction will be established.		
Commissioning. Employ total building commissioning practices tailored to the size and complexity of the building and its system components in order to verify performance of building components and systems and help ensure that design requirements are met. This should include a designated commissioning authority, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report.	Each OPDIV shall develop, implement and maintain a commissioning procedure for all new and renovated facilities that meet or exceed the Capital Investment Review Board threshold (\$10M).	<p>CDC guidelines require commissioning for all new capital construction projects. Scope of commissioning to be determined by the project team on renovation and alteration projects. Capital construction projects are to comply with the minimum commissioning requirements of LEED Prerequisite 1 for Fundamental Building Systems Commissioning. Laboratory projects and other projects involving systems critical to continual operations are to comply with LEED Additional Commissioning requirements.</p> <p>Commissioning of systems includes:</p> <ul style="list-style-type: none"> • Heating, cooling, ventilation and exhaust systems 	The FDA proposed design guidelines will require the commissioning of all new buildings and substantial renovations/additions in order to verify that design criteria are met. Commissioning will be performed by a true third party commissioning agent, under contract and supervision of the government. The A/E shall provide commissioning requirements during design, with input from government and commissioning agent. This action is later used to develop the commissioning plan. The third party commissioning agent shall inspect/confirm equipment installation, performance goals and requirements, by operational performance test, functional performance testing and re-testing as required, ultimately	The A/E is responsible for developing the requirements for the building systems commissioning plan during design, and documenting all requirements to be completed by the construction contractor during construction to ensure that building systems function in compliance with criteria set forth in the Project Contract Documents. The Commissioning Plan combines all system narratives, basis of design, assumptions and calculations for all systems into a single manual. When assembled with required as-built drawings and O&M manuals, this will provide an operating guide for the facility. The Building System Commissioning Plan shall be outlined in the 65% construction document phase	<p>NIH commissioning requirements are currently being revised and updated for release in a new publication. Integration of these practices in the updated Design Requirements Manual (DRM) has also been recommended.</p> <p>Facility condition assessments will be modified to include compliance with sustainability criteria of the Guiding Principles. Policies, plans and procedures of sustainability re-commissioning of existing buildings are not currently available. Draft Environmental Management Plans include development of sustainability assessments and re-commissioning procedures.</p>

	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
		<ul style="list-style-type: none">• Laboratory Equipment tied to HVAC system performance• Electrical Systems including lighting, switchgear, UPS, PDS, generators• Building automation controls, security systems• Fire and Life safety systems <p>Commissioning process includes:</p> <ul style="list-style-type: none">• Installation verification• Operational performance test• Functional performance test• TAB verification• Re-testing as needed• Commissioning reports• Training	providing the government with a commissioning report.	of the design as a submission separate volume. In the final Construction Documents, the A/E shall provide a Division 17 Construction Specification dedicated to Building Systems Commissioning, which will address the various building systems to be commissioned. The document shall define “The Commissioning Team”.	

II. Optimize Energy Performance

Energy Efficiency. Establish a whole building performance target that	Each OPDIV shall develop guidelines to incorporate performance targets consistent	The current CDC guidelines require compliance with the following Executive Orders	Existing Facilities: For FDA’s owned facilities, the FDA is currently in the process of	The EO relating to Energy is sited in the contract documents.	The energy cost reduction requirements have been incorporated into the current
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	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the Energy Star® targets for new construction and major renovation where applicable. For new construction, reduce the energy cost budget by 30 percent compared to the baseline building performance rating per the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE) and the Illuminating Engineering Society of North America (IESNA) Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings. For major renovations, reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.	<p>with the MOU, EPAct 2005 and EO 13423. Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.</p> <p>Per EO 13423 improve energy efficiency and reduce greenhouse gas emissions through reduction of energy intensity by 3% annually through the end of FY 2015 or 30% by the end of FY 2015, relative to the baseline of energy use in FY 2003.</p> <p>Ensure renewable electricity consumption meets EPAct2005 goals of No Less Than:</p> <ul style="list-style-type: none">○ 3% in FY 2007-2009○ 5% in FY 2010-2012○ 7.5% in FY 2013 and thereafter <p>In addition, EO 13423 requires that at least half of renewable energy comes from new (after 1/1/1999) renewable sources.</p>	<p>requiring Federal agencies to implement sustainable design principles:</p> <ul style="list-style-type: none">• Executive Order 13123 – June 3, 1999 – Green the Government Through Efficient Energy Management• Executive Order 13148 – April 21, 2000 – Greening the Government Through Leadership in Environmental Management• Executive Order 13149 – April 21, 2000 – Greening the Government Through Federal Fleet and Transportation Efficiency <p>CDC’s guidelines also include the following requirements:</p> <ul style="list-style-type: none">• Evaluate all energy conservation measures and energy recovery schemes on a life cycle cost basis.• Design and specify energy efficient systems and energy recovery for the	<p>initiating ‘Utility Energy Service Contracts (UESC’s) with various utility service providers. The service provider will provide a detailed analysis of the existing building components (infrastructure, mechanical, electrical and plumbing), thus providing a ‘whole building performance’ evaluation/audit, which in turn will establish existing baseline conditions and targets. The evaluation/audit will provide existing component operations, equipment and component efficiency and energy demands. Ultimately providing designs to earn the Energy Star (trade mark) targets. Upon completion of the detailed audits, the service provider will list recommended actions in the form of ‘proposed energy conservation measures (ECM’s). These measures may include integrated HVAC design, energy recovery devices, and improved equipment efficiency. These</p>	<p>draft of the updated Design Requirements Manual (DRM).</p> <p>Standard operating procedures are currently being reviewed for changes needed to address this guiding principle requirement in existing buildings.</p>	

Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
<p>Per EPCa 2005 purchase Energy Star and FEMP recommended products where cost effective or meets agency functional requirements. This includes premium efficient products such as electric motors, air conditioning, and refrigeration equipment procurements.</p> <p>Progress and implementation plan shall be reported in Annual Energy Report.</p>	<p>HVAC systems. Energy recovery for lab exhaust air is not permitted.</p> <ul style="list-style-type: none"> Heat wheels and other enthalpy recovery devices are preferred recovery schemes. All energy recovery schemes, including sensible-only schemes may be acceptable. All design and construction shall comply with the Energy Policy Act of 2005 (EPCa2005) and Executive Order 13123. Develop the Base Energy Budget from the Building Program, Conceptual Design, or other specific instructions. The budget represents a minimum level of efficiency to be achieved in the final design. Incorporate in the final design those design alternatives and energy conservation options 	<p>measures will be used to reduce the energy cost budget by 20 percent below pre-renovations 2003 baseline.</p> <p><i>New Facilities:</i> For FDA new facilities, all design and construction elements, where applicable shall comply with the Energy Policy Act of 2005. These elements shall include a review of all technologies, including, but not limited to heat recovery devices, i.e., heat wheels and other enthalpy devices. The A/E shall establish a whole building performance target for the intended use of the proposed facility as compared with a similar building and use. The A/E is to utilize the most energy efficient equipment available and/or application to achieve a reduced energy cost budget of 30% compared to the baseline performance rating per ASHRAE. Design facility utilizing LEED and/or Green Globe requirements.</p>		

Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
	<p>identified by the design team that: are found to have returns on investment acceptable to CDC; that optimize the building design within the project budget limitations; and achieve the desired LEED rating or achieve the same level as defined by LEED criteria.</p> <ul style="list-style-type: none">• Linear Fluorescent bulbs shall be T-8 or better.• Evaluate and incorporate cost effective renewable energy technologies.• Require Energy Star certified products.• Consider more efficient glazing and shading alternatives.• Consider increased energy efficiency through architecture, equipment, equipment operations, pipe and duct insulation thickness, and similar components and methodologies.• Consider increased use of			

	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
		variable frequency drives, run around loops, economizers, heat recovery systems, and similar alternatives.			
Measurement and Verification. In accordance with DOE guidelines issued under section 103 of the Energy Policy Act of 2005 (EPAct), install building level utility meters in new major construction and renovation projects to track and continuously optimize performance. Compare actual performance data from the first year of operation with the energy design target. After one year of occupancy, measure all new major installations using the Energy Star® Benchmarking Tool for building and space types covered by Energy Star®. Enter data and lessons learned from sustainable buildings into the High Performance Buildings	Each OPDIV shall install metering consistent with the MOU and EPAct 2005. HHS Metering Policy, Compliance Document, and Implementation Plan completed and distributed to OPDIVs. Verification shall be made of actual performance data with energy design target.	<p>The CDC has the following guidelines:</p> <p>Meter all building utility services, including but not limited to, electrical, chilled water, steam, and potable water.</p> <p>Consider extended commissioning of systems once the facility has been occupied, for verification and comparison of system performance with design goals and parameters.</p>	The proposed FDA guideline shall include instruction to install building level utility meters in new major construction and renovation projects to tract and continuously optimize performance in accordance with DOE guidelines issued under section 103 of EPAct05. This will be addressed in FDA’s metering plan, which is under development. The metering plan shall emphasize keys to effective use of metering, such as a combination use of meters with automated data collection devices.	The IHS currently in the process of revising the guidelines.	<p>Building level utility metering has been installed in all buildings on the NIH campus. One year of data on actual energy use is being collected to establish the baseline energy use for each existing building. Off-campus facilities are being contacted to determine the status of metering on their buildings.</p> <p>A process for EPA EnergyStar Benchmarking all existing buildings has not been investigated or established. Because most buildings at NIH are Lab and Special Use buildings, the EPA EnergyStar Benchmarking tool, which is designed for simpler, more conventional building types, may not be an accurate measure of performance for most NIH buildings.</p>

	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
Database.					Integration of these measurement and verification requirements in the updated Design Requirements Manual (DRM) has been recommended.

III. Protect and Conserve Water

<p>Indoor Water. Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the Energy Policy Act of 1992 fixture performance requirements.</p>	<p>Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU, EPAAct 2005 and EO 13423.</p> <p>Beginning in FY 2008, per EO 13423 reduce water consumption intensity, relative to the baseline of the agency's water consumption in FY 2007, through life-cycle cost-effective measures by 2 percent annually through the end of FY 2015 or 16 percent by the end of FY 2015.</p> <p>Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case</p>	<p>The current CDC guidelines require compliance with the following Executive Order:</p> <p>Executive Order 13123, Sec. 207 – Water Conservation.</p> <p>The current CDC guidelines also include:</p> <ul style="list-style-type: none"> • Conduct distribution system audits, leak detection and repair. • Post water awareness information to encourage conservation from building occupants. • Use low flow faucets with aerators or flow restrictors. Use low flow shower 	<p>The FDA shall include in its design guidelines the strategy to install fixtures (low flow faucet aerators, no water urinals, toilets, ultra low flow shower heads, etc.) capable of reducing in aggregate the use of potable water requirements by 20 percent compared to baseline calculated for the building after meeting the Energy Policy Act of 1992 fixture performance requirements. The FDA guidelines shall include the requirement to use Energy Star and/or FEMP designated fixtures.</p>	<p>The IHS has draft guidelines which includes the provisions of the Energy Policy Act of 1992. Most areas are following this guideline.</p>	<p>Integration of these criteria in the Design Requirements Manual (DRM) revision has been recommended. Standard operating procedures are currently being reviewed for revisions needed to address this guiding principle sustainability requirement in existing buildings.</p>
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	Health and Human Services (HHS)	Centers for Disease Control & Prevention/ ATSDR (CDC)	Food and Drug Administration (FDA)	Indian Health Service (IHS)	National Institutes of Health (NIH)
	basis.	heads, toilets and urinals. <ul style="list-style-type: none">• Re-circulate process cooling water.• Install an automatic boiler/steam blowdown system based on water quality to better manage the treatment of boiler make-up water.• Capture air handling unit condensate water for irrigation or cooling tower makeup water.			
Outdoor Water. Use water efficient landscape and irrigation strategies, including water reuse and recycling, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities). Employ design and construction strategies that reduce storm water runoff and polluted site water runoff.	<p>Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU, EPAAct 2005 and EO 13423.</p> <p>Beginning in FY 2008, per EO 13423 reduce water consumption intensity, relative to the baseline of the agency’s water consumption in FY 2007, through life-cycle cost-effective measures by 2 percent annually through the end of FY 2015 or 16 percent by the end of FY 2015.</p>	<p>The current CDC guidelines require compliance with the following Executive Order:</p> <p>Executive Order 13123, Sec. 207 – Water Conservation.</p> <p>The current CDC guidelines also include:</p> <ul style="list-style-type: none">• Use low maintenance plant material, climate appropriate and drought resistant.• Use of potable water for irrigation is prohibited. Provide collection and	<p>The FDA guidelines shall include provisions to use low maintenance plant species (native turf and wildflowers). Analyze the use of rain water collection systems for use in lawn irrigation systems. FDA is currently considering the feasibility of a gray water reuse system at its Jefferson Laboratories Complex.</p>	<p>The IHS has a policy to use native plants and no outside irrigation. Some drip irrigation is still used.</p>	<p>This guiding principle is largely met by NIH current strategies for installation and maintenance of landscaping, control of grading and runoff from construction sites and increasing use of other low impact development practices. Except in small courtyard areas no permanent irrigation systems are used, and 50 percent of these have been eliminated in the last year. Implementation of the NIH Urban Forest Conservation Plan is increasing no-mow and forest duff covered areas,</p>

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	Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.	<p>storage of rainwater and non laboratory building grey water for irrigation if required.</p> <ul style="list-style-type: none"> Collect and store cooling condensate for cooling tower make-up or irrigation 			planting of native plants that do not require irrigation and installation of storm water buffers. Compliance with state storm water and sediment erosion assures reduction of water runoff and pollution. A gray water reuse system has been installed at the NIH Animal Center in Poolesville. Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended for but is not complete.

IV. Enhance Indoor Environmental Quality

Ventilation and Thermal Comfort. Meet the current ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone, and ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality.	Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU and EAct 2005. Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.	<p>The CDC guidelines include the ASRAE Standard 55-2004 and 62.1-2004 for all occupied spaces. The guidelines for laboratory spaces, vivariums, and computer rooms are more stringent.</p> <p>The current guidelines also include:</p> <ul style="list-style-type: none"> Maintain standard 	The FDA guideline shall include the ASHRAE Standard 55-2004 and 62.1-2004 for all occupied spaces. Laboratory requirement vary according to use, but are more stringent, and require 100% outside air. All ventilation rates shall meet and/or exceed ASHRAE minimum standards. Check air flow rates to eliminate cross contamination where required. External devices (e.g., chemical	The IHS is currently in the process of revising the guidelines.	<p>Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended but is not complete.</p> <p>Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing buildings.</p>
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	<p>ventilation rates per ASHRAE standards and applicable codes. Above this minimum, including air-economizer systems, modulate outside air quantities (ventilation) by comparing levels of indoor versus outdoor contamination. For specific spaces where occupancy rates are variable (e.g. auditoriums and conference rooms) demand controlled ventilation is desired on a zone basis. CO2 concentrations are a recognized indicator of occupancy levels, but other contaminants such as CO, VOCs, NOX, smoke, etc should also be used to control the outside air flow rates. Self calibrated systems are preferred.</p> <ul style="list-style-type: none">• Evaluate all systems and air distribution devices for ventilation effectiveness.• Laboratories and	<p>fume hood exhaust stacks, gas vents, etc.) that produce fumes or other toxic chemicals shall meet and/or exceed minimum distances to reduce the potential for re-entrainment via fresh air intakes.</p>		

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		<p>vivariums shall be ventilated with 100% outside air.</p> <ul style="list-style-type: none"> Design ventilation ducts and shafts for 100% outside-air to the air handlers (this is also required by the outside-air economizer control requirement). Exhaust flow rates from restrooms, locker rooms, janitor closets, fitness centers, and similar spaces shall correspond to minimum 10 air changes per hour. 			
<p>Moisture Control. Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination.</p>	<p>Each OPDIV shall develop guidelines to incorporate a moisture control strategy in each project that considers design, construction, operations and maintenance.</p>	<p>Current CDC guidelines include:</p> <ul style="list-style-type: none"> Prior to installation of any carpet, carpet tile, wood, vinyl, rubber or other flooring materials, the moisture emission rate from a substrate concrete slab shall be no greater than 3.0 pounds per 100 square feet per 24 hours. Provide strategies for 	<p>The FDA shall include in its guidelines, the establishment and implementation of a moisture control strategy for controlling moisture flows and condensation to prevent building damage and mold contamination. Moisture control measures shall include both interior and exterior measures, i.e. proper insulation, proper rain water drainage away from building wall and</p>	<p>The IHS is currently in the process of revising the guidelines.</p>	<p>Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended but is not complete.</p> <p>Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing buildings.</p>

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		controlling moisture during construction and operation of the building. <ul style="list-style-type: none"> Consider including exterior envelope as part of the building commissioning. 	proper installation of vapor and moisture barriers where applicable. The FDA requirement shall also require proper handling and storage of materials to prevent mold contamination of materials prior to their installation. FDA will consider and formalize strategies for controlling moisture during the operation of buildings.		
Daylighting. Achieve a minimum of daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks. Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.	Each OPDIV shall develop guidelines to incorporate performance targets consistent with the MOU and EPAct 2005. Innovation in design is encouraged. Exceptions to the performance target shall be defined on a case-by-case basis.	The current CDC guidelines include: <ul style="list-style-type: none"> Maximize the amount of daylight to the maximum personnel possible 	The FDA shall include in its guideline the requirement to meet and/or exceed minimum HHS daylighting requirements of 2 percent in 75 percent of all occupied space for visual task. The requirement shall also include manual dimming controls. Where daylighting is not achievable, but minimum daylighting requirements are met, the use of full spectrum bulbs should be considered.	The IHS is currently in the process of revising the guidelines.	Integration of these criteria in the revised Design Requirements (DRM) has been recommended but is not complete. Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing buildings.
Low-Emitting Materials. Specify materials and products with low pollutant emissions, including adhesives, sealants, paints,	Each OPDIV shall develop guidelines and/or standard specifications to incorporate low emitting materials and products.	The current CDC guidelines include: <ul style="list-style-type: none"> When available products certified as or meeting the 	The FDA guideline and contract specifications shall require materials and products that are low pollutant emissions, including adhesives,	No policy.	Presently the integration of these criteria has been recommended for inclusion into the current Design Requirements Manual (DRM)

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carpet systems, and furnishings.		same criteria as GREENGUARD indoor Air Quality Certified low emission products be used for flooring, ceiling systems, paints, coatings, insulation, adhesives and wall coverings.	sealants, paints, carpet systems and furnishings. Carpet systems must meet or exceed the carpet and rug institute Green Label Indoor quality test program. Composite woods must not contain urea-formaldehyde resins. Paints and coatings must meet VOC and Chemical limits of Green seal requirements. Specify also, that products when available meet GreenGuard indoor air quality certified low emission products. Adhesives shall meet or exceed minimum VOC limits of the South Coast Air Quality Management District Rule # 1168.		revision but is not complete. Standard operating procedures are currently being reviewed for revisions required to modify facility operating practices to address this guiding principle sustainability requirement in existing buildings.
Protect Indoor Air Quality during Construction. Follow the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 1995. After construction and prior to	Each OPDIV shall follow OSHA and SMACCNA guidelines to ensure indoor air quality during construction. As a minimum each OPDIV shall follow the MOU requirements for flush-out.	The current CDC guidelines include: <ul style="list-style-type: none"> Comply with LEED Indoor Environmental Quality Credit 3.2, Construction IAQ management Plan. 	The FDA guidelines and construction contract shall include the requirement of meeting and/or exceeding SMACNA IAQ guidelines for buildings under construction and the proper handling and protection of site materials from moisture. This requirement eliminates the possibility of mold contamination prior to the	OSHA Guidelines sited in all contracts.	Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended but is not complete. Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing

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occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.			installation of the material. The requirement shall also require the flush-out of the building until air quality meets or exceed all applicable EPA and OSHA standards, guidelines, etc. Requirement shall provide adequate air flow through building under construction with out moving pollutants through work areas. Exterior equipment producing pollutants and/or fumes shall not be located in close proximity of any existing building intake. Dust barriers shall be provided when and where applicable as to isolate specific work areas. Block interior exhaust or isolate existing system components that could cause contamination to day to day operations.		buildings.

V. Reduce Environmental Impact of Materials

Recycled Content. For EPA-designated products, use products meeting or exceeding EPA’s recycled content recommendations. For other products, use	Each OPDIV shall develop guidelines and/or standard specifications to incorporate recycled content materials.	The current CDC guidelines require compliance with the following Executive Order, requiring Federal agencies to implement sustainable design principles:	The FDA guideline shall require the A/E to specify recycled-content products as designated by the EPA, meeting and/or exceeding the EPA’s recycled content	No Policy.	Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended but is not complete.
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materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.		<ul style="list-style-type: none">Executive Order 13101 – September 14, 1998 – Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition <p>The CDC guidelines also include:</p> <ul style="list-style-type: none">The Resource Conservation and Recovery Act requires agencies to buy recycled-content products designated by the EPA. CDC is committed to maximizing the use of recycled and recycled-content materials specified in the construction of Federal building projects. Information on specifying and purchasing recycled-content products can be found at www.epa.gov/cpgWhere possible specify building products that are manufactured regionally	recommendation.		Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing buildings.

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		within a radius of 500 miles. For capital projects, 20% of the building materials should be manufactured regionally within a radius of 500 miles when possible. Of these regionally manufactured materials, consider specifying a minimum of 50% that are extracted, harvested, or recovered within 500 miles.			
Biobased Content. For USDA-designated products, use products meeting or exceeding USDA’s biobased content recommendations. For other products, use biobased products made from rapidly renewable resources and certified sustainable wood products.	Each OPDIV shall develop guidelines and/or standard specifications to incorporate bio-based content materials.	<p>The current CDC guidelines require compliance with the following Executive Order requiring Federal agencies to implement sustainable design principles:</p> <ul style="list-style-type: none"> Executive Order 13134 – August 12, 1999 – Developing and Promoting Bio-Based products and Bio-Energy 	The FDA guideline will require that 5% of the products used meet or exceed USDA’s bio-based content recommendations. When using wood, 50% of wood-based materials shall be certified by the Forest Stewardship Council guidelines. Require the use of bio-based products made from rapidly renewable resources and certified sustainable wood products.	No Policy.	<p>Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended but is not complete.</p> <p>Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing buildings.</p>
Construction Waste. During a project’s planning stage, identify local	Each OPDIV shall develop guidelines to incorporate a construction waste strategy in	The current CDC guidelines require compliance with the following Executive Order,	The FDA guideline shall require that 50% of the construction waste (by weight)	No Policy.	Current NIH procedures largely meet the requirements of this guiding principle.

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recycling and salvage operations that could process site related waste. Program the design to recycle or salvage at least 50 percent construction, demolition and land clearing waste, excluding soil, where markets or on-site recycling opportunities exist.	each project that meets the minimum 50% construction waste reduction (by either weight or volume)	<p>requiring Federal agencies to implement sustainable design principles:</p> <p>Executive Order 13101 – September 14, 1998 – Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition</p>	be diverted from landfill via recycling or re-use, excluding soil.		<p>NIH Controlled Material Specifications require recycling of debris from construction projects.</p> <p>NIH decommissioning protocols require submission of waste minimization and recycling plans for major demolition projects and advance approval of recycling facilities.</p> <p>Procedures to track the amount and percentage of wastes recycled from each project are being developed and tested.</p> <p>Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended but is not complete.</p>
Ozone Depleting Compounds. Eliminate the use of ozone depleting compounds during and after construction where alternative environmentally	Each OPDIV shall develop guidelines and/or standard specifications to eliminate the use of ozone depleting compounds.	<p>The current CDC guidelines include:</p> <ul style="list-style-type: none"> The use of products and systems (such as paint, adhesives, sealers, 	The FDA guidelines shall require zero usage of CFC's refrigerants in HVAC and refrigeration systems and the elimination of use of ozone depleting compounds during	The current guidelines include: Replace any CFC systems. IHS prohibits the installation of HVAC, refrigeration equipment and fire suppression systems that	Integration of these criteria in the revised Design Requirements Manual (DRM) has been recommended but is not complete.

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<p>preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account life cycle impacts.</p> <p>http://www.epa.gov/air/oaqps/peg_caa/pegcaain.html</p>		<p>sealants, floor tile, equipment, etc.) containing chlorinated fluorocarbons (CFCs) is prohibited on all projects.</p> <ul style="list-style-type: none"> For capital construction projects it is preferred to install base building level HVAC, refrigeration equipment and fire suppression systems that do not contain hydro chlorofluorocarbons, HCFCs or Halon. Carefully consider the trade-offs between various CFC and Halon substitutes. For renovation or alteration projects check HVAC, refrigerant equipment and fire suppression systems before beginning design work. Replace any CFC systems. It is preferred to install HVAC, refrigeration equipment and fire suppression systems that do not 	<p>and after construction, consistent with the Montreal Protocol and/or Title VI of the Clean Air Act Amendment of 1990.</p>	<p>contain HCFCs or Halon.</p>	<p>Standard operating procedures are being reviewed for changes needed to address this guiding principle sustainability requirement in existing buildings.</p>

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contain HCFCs or Halon. Carefully consider the trade-offs between the various CFC and Halon substitutes.					